WHAT IS CLAIMED IS:

1. A method for detecting an analyte in a sample comprising:

(a) contacting a fluorophore-labeled aptamer bound to a solid support with the sample;

(b) illuminating the aptamer with polarized light;

(c) measuring the fluorescence anisotropy of the fluorophore; and

(d) identifying the presence or amount of the analyte when said fluorescence anisotropy measurement is greater than an anisotropy measurement obtained in the absence of the sample.

2. The method of claim 1 wherein the solid support is a bead.

3. The method of claim 2 wherein the bead is a silica bead.

4. The method of claim 2 wherein the bead has a diameter between about 1 μm and about 10 μm.

5. The method of claim 4 wherein the bead has a diameter of about 5 μm.

6. The method of claim 2 wherein the bead is suspended in solution.

7. The method of claim 2 wherein the bead is arranged in a two-dimensional array.

8. The method of claim 1 wherein the aptamer comprises between about 10 and about 100 nucleotides.

9. The method of claim 1 wherein the aptamer is labeled with a fluorophore selected from the group consisting of fluorescein derivatives, eosin derivatives, coumarin derivatives, and rhodamine derivatives.

10. The method of claim 9 wherein the aptamer is labeled with carboxyfluorescein (FAM).

11. The method of claim 1 wherein the aptamer is part of an array of aptamers.

12. The method of claim 11 wherein the array comprises two or more addressable locations.

13. The method of claim 12 wherein each addressable location comprises a single type of aptamer.

14. The method of claim 12 wherein each addressable location comprises multiple types of aptamers.

15. The method of claim 14 wherein each type of aptamer is labeled with a fluorophore with unique spectral characteristics.

16. The method of claim 1 wherein the polarized light is laser light.

17. The method of claim 1 wherein the analyte is associated with a disease or disorder.

18. The method of claim 1 wherein the sample is obtained from a patient suspected of suffering from a disease or disorder.

19. The method of claim 1 wherein the analyte is a protein.

20. The method of claim 1 wherein the analyte is a metabolite.

21. The method of claim 1 wherein the sample is from a human patient and the analyte is associated with a disease or disorder.